REMARKS

In the Official Action, the Examiner objected to claim 13 and the specification and rejected claims 1-13 as being indefinite under 35 U.S.C. §112, second paragraph. By the present Amendment, the specification has been amended to make some minor editorial revisions and to address certain informalities. In addition, the claims have been amended to overcome the §112 rejection. Specifically, the term "methoxyethy" has been changed to "methoxyethyl" in claim 3. Also, in claims 2 and 13 the terms "an alkyl group(s)", "an alkoxy group(s)" and "a halogen atom(s)" have been amended to "at least one alkyl group", "at least one alkoxy group" and "at least one halogen atom", respectively. It is believed that the above amendments address the alleged §112 indefiniteness while not limiting the scope of the claims.

Applicants also have amended claim 9 in order to correct the claim by changing "deacidifying agent" into "dehydrating reactant." Support for such change can be found in the specification at page 7, lines 8-10.

In the Official Action, the Examiner rejected claims 1, 6, and 13 as allegedly being anticipated by Awano et al. (Arch. Pharm. Med. Chem. 1996, 329, 66-72) and claims 7-9 as allegedly being obvious over Awano et al. in combination with Karimian, United States Patent No. 5,610,292. Applicants have canceled claims 1, 4-6, and 11, amended claims 7 and 10 without prejudice or disclaimer, and added new claims 14-16. In new independent claim 14, the tertiary amine is defined as the alicyclic amine represented by Formula 4 previously recited in claim 4. In such amendment, applicants modified Formula 4 to clarify the valance in the Formula. Further, claims 15 and 16 have been added in place of

claims 5 and 11, respectively. Claims 15 and 16 have a modified Formula 5, which was changed to mirror the modification of Formula 4 in claim 14. Also, new claims 14-16 reflect changes made to address the §112 rejections the Examiner made to claims 1, 5 and 11. Specifically, the recitation "a hydroxyl group substituted with a hydroxyl-protecting group" has been changed in claims 14 and 16 to read, per the Examiner's suggestion, "a protected hydroxyl group." Additionally, while the applicants do not agree with the Examiner's position, the recitation "where, X, R1, R2, R3, n, m, A, Y, Z are as defined above" has been removed from new claim 15. However, claim 15 depends from claim 14 and carries with it the definitions of claim 14. Also, the term "a halogen atom(s)" has been changed to "at least one halogen atom" in claims 14 and 16.

Applicants have considered the rejections based on Awano et al. and Awano et al. in combination with Karimian and respectfully submit that the amended claims are patentable over the teachings of the cited article and patent which will be evident to those of ordinary skill in the art from the following discussion.

As set forth in greater detail in the background of the present application, the conventional method of Awano et al. is unsuitable for mass production, since the reaction is extremely slow and time-consuming, and, if less than 2.0 equivalents of 4-(N,N-dimethylamino)pyridine (hereinafter referred to as DMAP) is used based on reaction substrate, then the unchanged substrates remain and manipulation to separate them from the product becomes necessary, resulting in an increase in the number of processes. DMAP is not an alicyclic amine represented by Formula 4.

The present invention marks a significant advance in the art because it can provide an efficient method for producing cytidine derivatives in large quantities which has been previously absent. The present invention provides a method which, in one aspect, utilizes alicyclic amines represented by Formula 4 to react with uridine derivatives and a dehydrating reactant in the presence of a deacidifying agent, followed by reaction with ammonia to yield cytidine derivatives. Such advantages are illustrated in the Examples which are provided in the specification and can be contrasted with the Comparative Examples. In this respect, note that in the conventional method the reaction mixture must be stirred at room temperature for 22 hours before the addition of 28% ammonia water, while only one hour is required in the method according to the present invention, which makes it possible to reduce the overall reaction time greatly.

Awano et al. does not anticipate or teach the invention as now defined in the claims. As described above and as now defined in the claims of record, the present invention incorporates an alicyclic amine having the defined chemical structure instead of the DMAP used by Awano et al.. Such important distinction is reflected by the results which can be obtained in accordance with the present invention which can be contrasted with the results using the Awano et al. method that have been shown in the illustrative and comparative Examples referred to above.

The anticipation rejection of claim 13 is also respectfully traversed based on the above discussion. Applicants note that claim 13 relates to a reaction of the cytidine derivatives or salts thereof according to claim 16 with ammonia or a primary or secondary amine. Thus, claim 13 defines a method of producing a cytidine derivative from an

intermediate as the compound in which an alicyclic amine is attached to cytidine. This intermediate is not anticipated or taught by Awano et al. and claim 13 is therefore not anticipated or rendered obvious by Awano et al..

The rejection of claims 7-9 as obvious over Awano et al. in combination with Karimian, US Patent No. 5,610,292, is respectfully traversed based on the above comments and the following. As noted above, Awano et al. does not teach the production process using alicyclic amine as the tertiary amine to obtain a cytidine derivative. Further, Karimian discloses a process to synthesize a cyclic cytidine from cytidine, but uses no amination reaction as does the present invention, and does not teach the use of the alicyclic amine of Formula 4 in the present invention. Additionally, the use of p-toluenesulfonyl chloride in Karimian does not concern either the process of Awano et al. or of the present invention. Thus, it would not have been obvious to combine Awano et al. and Karimian to try to reach the present invention as defined in claims 7-9 (absent improper reliance on applicants' specification), which depend from claim 14 which incorporates an alicyclic amine in the method for producing the cytidine derivative represented by Formula 3.

When the clear distinctions between the present invention and the cited prior art are appreciated, particularly in light of the technical evidence of record, applicants respectfully submit that those of ordinary skill in the art will recognize that the claims of record are patentable in all respects. Accordingly, reconsideration and allowance of the present application are requested.

Should the Examiner have any questions concerning the subject application, the Examiner is invited to contact the undersigned attorney at the number provided below.

Respectfully submitted,

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